



United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

# Colorado Basin Outlook Report MAY 1, 2003



# Basin Outlook Reports

## and

## Federal - State - Private

## Cooperative Snow Surveys

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### *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# COLORADO WATER SUPPLY OUTLOOK REPORT MAY 1, 2003

## Summary

For most of northern Colorado, April brought additional snowfall to mountain locations, either adding to the total snowpack or at least delaying the melt until later in the month. Most of the April snowpack improvements occurred in those basins where recent improvements had already boosted the snowpack totals; while dryer portions of the state saw only a continuation of that pattern. Runoff forecasts for 2003 across most of the state are below average. Colorado continues to have basins that will face severe drought conditions this summer. Reservoir storage is extremely poor across most of the state, and little to no improvement is expected this year.

## Snowpack

April snowfall continued to favor Colorado's northern mountains and Front Range. However, only the North Platte Basin ended the month of April with more snow water equivalent than at the beginning of the month. In all other basins the snowmelt was greater than the increases, causing those basins to end the month with less snow water equivalent than they began the month. Statewide, Colorado's snowpack on May 1 was 87% of average, and is well over four times last year's May 1 snowpack. According to SNOTEL data the state's peak snowpack was reached on April 10 at 93% of the average peak accumulation. Across southwestern Colorado, April's weather patterns brought no relief to drought-like conditions. Snowfall was extremely limited and warm, dry, and windy conditions induced snowmelt and sublimation at a rapid pace. By month's end, the snowpack percentages across the southwestern basins had decreased significantly. The lowest snowpack percentages in the state are reported in the San Juan, Animas, Dolores, and San Miguel basins at only 51% of average. Additionally, the Rio Grande and Gunnison basins are reporting only 56% and 66% of average, respectively. While these conditions are not as dramatic as last year's, they present significant challenges to water users, especially considering the lack of reservoir storage. In all basins except those three mentioned previously, this year's May 1 snowpack is the highest, as a percent of average, since 1997. Throughout the Colorado and the North and South Platte basins, this year's snowpack is the first above average snowpack measured on May 1 since 1997. The South Platte Basin continues to report the highest percent of average snowpack in the state at 109% of average.

## Precipitation

April was a dry month for all but the northwest portion of the state. Below average totals were measured in all basins except the Yampa, White, North Platte, and Colorado basins. For the second consecutive month, the lowest precipitation totals were measured in the San Juan, Animas, Dolores, and San Miguel basins where totals of only 57% of average were reported at SNOTEL sites. The highest basinwide precipitation total was measured in the Yampa and White basins at 137% of average for the month. Statewide, totals were 97% of average in April. For the water year, which began on October 1, 2002, percentage of average range from only 77% in the San Juan, Animas, Dolores, and San Miguel basins, to 109% in the South Platte Basin. The Colorado Basin is the only other basin reporting an above average water year total at 101% of average. Statewide water year totals remain the same as last month, at 94% of average.

## Reservoir Storage

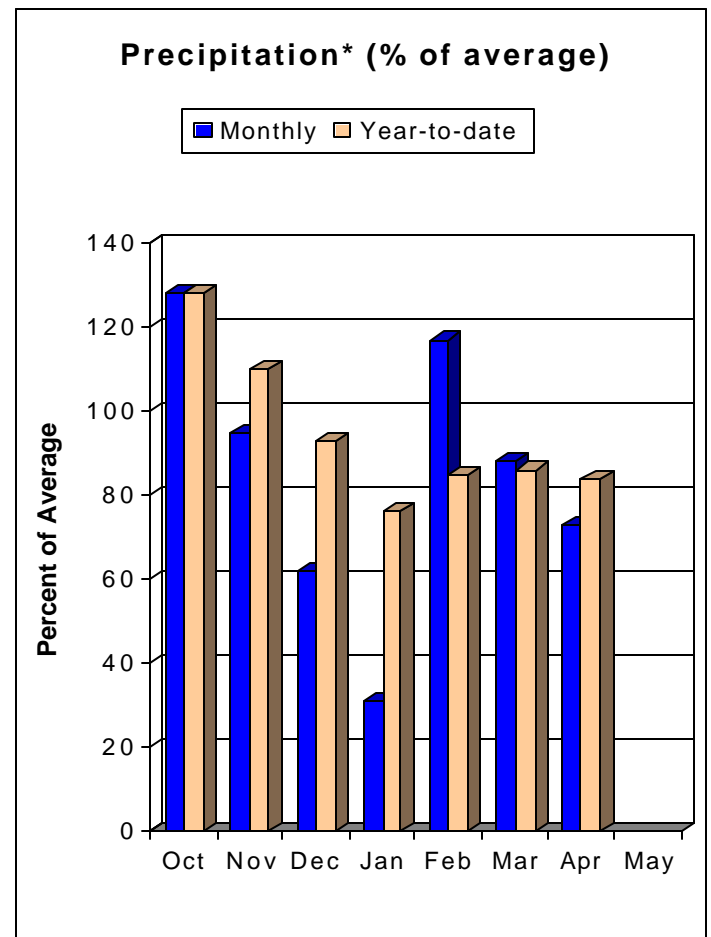
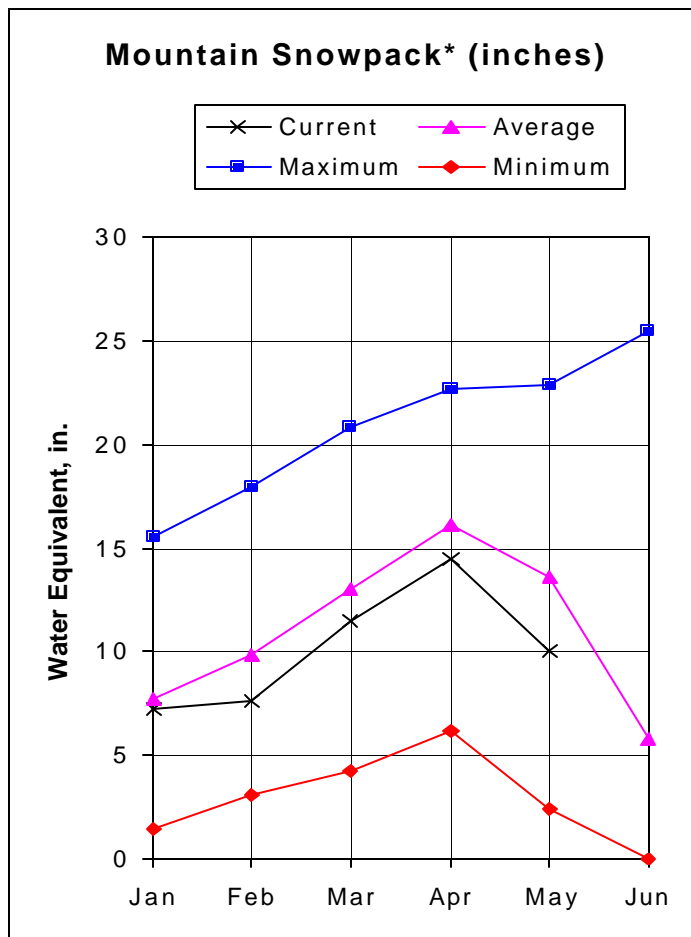
Reservoir storage continues to show the lingering effect of last year's drought across Colorado. Reservoirs were severely drawn down last summer and remain far from recovery. Statewide, storage volumes dipped to a low point last August at 1.94 million acre-feet below the average mark. Since then, some additional storage progress has been made, but the deficit remains at nearly 1.35 million acre-feet below the average. All basins are reporting well below average volumes, with the lowest percentage reported in the Colorado Basin at only 42%. Volumes in the Arkansas Basin remain nearly as low at only 44% of average for this date. Statewide, storage volumes are 60% of average and are 70% of last year's May 1 storage. While it's likely we'll see improvements in storage volumes in the coming months as runoff begins, it remains likely we'll see volumes decline as the late summer demands are met.

## Streamflow

Only minor adjustments were made in streamflow forecasts across Colorado this month. The most notable changes occurred in the basins of southwestern Colorado, where the below average forecasts were reduced even further this month. Now, forecasts across most of these basins range from only 40% to 55% of average. Volumes of less than 70% of average are also prevalent throughout the Gunnison, White, and Rio Grande basins, and volumes of less than 90% of average prevail throughout the Arkansas, upper South Platte, Yampa, and North Platte basins. The only forecasts that approach average extend through the Colorado River Basin into the northern tributaries of the South Platte basin. Along the Continental Divide in these basins, runoff volumes are forecast to range from 100% to 110% of average. Given these forecasts, there remains little optimism for significant improvement in reservoir storage this year.

# GUNNISON RIVER BASIN

## as of May 1, 2003



\*Based on selected stations

The melt-out season is well under way in the Gunnison Basin. Basin-wide, the snow has melted about 4.5 inches of snow water; the remaining amount is only 66% of average, which is down 20% of average from last month. If the snow continues to melt at the current rate, most of the measurable snow will be gone before the first of June, which is over a month earlier than the average melt-out date. The snowpack measurements range from only 50% of average in the Uncompahgre Watershed, to 77% of average in the Surface Creek Watershed. Precipitation during April was only 73% of average, and the water year total is now 84% of average. There has been 33% more precipitation this water year compared to last water year by this time. Reservoir storage is at 83% of average, which is not much of an improvement from last month. There is only 71% of the amount there was last year at this time. Streamflows in the basin have not increased as much as would be expected during the snow melt, and therefore most of the forecasts have been reduced. They range from only 49% of average on Cochetopa Creek below Rock Creek, to 72% of average on Tomichi Creek at Sargents.

GUNNISON RIVER BASIN  
Streamflow Forecasts - May 1, 2003

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Taylor River blw Taylor Park Resv	APR-JUL	49	63	73	71	83	97	103
Slate River nr Crested Butte	APR-JUL	54	59	62	70	65	70	89
East River at Almont	APR-JUL	100	121	135	70	149	170	192
Gunnison River nr Gunnison	APR-JUL	181	230	260	67	290	340	390
Tomichi Creek at Sargents	APR-JUL	14.0	19.0	23	72	27	32	32
Cochetopa Creek blw Rock Creek	APR-JUL	2.8	6.2	8.5	49	10.8	14.2	17.3
Tomichi Creek at Gunnison	APR-JUL	31	43	52	64	62	79	81
Lake Fork at Gateview	APR-JUL	60	72	80	64	88	100	126
Blue Mesa Reservoir Inflow	APR-JUL	320	420	485	67	550	650	720
Paonia Reservoir Inflow	MAR-JUN	45	53	59	59	65	75	100
	APR-JUL	43	53	61	60	69	82	102
N.F. Gunnison River nr Somerset	APR-JUL	151	179	200	66	222	256	305
Surface Creek nr Cedaredge	APR-JUL	8.0	9.5	10.6	62	11.9	14.1	17.1
Ridgway Reservoir Inflow	APR-JUL	52	59	65	64	71	82	102
Uncompahgre River at Colona	APR-JUL	51	65	75	54	86	103	139
Gunnison River nr Grand Junction	APR-JUL	575	780	920	59	1060	1270	1560

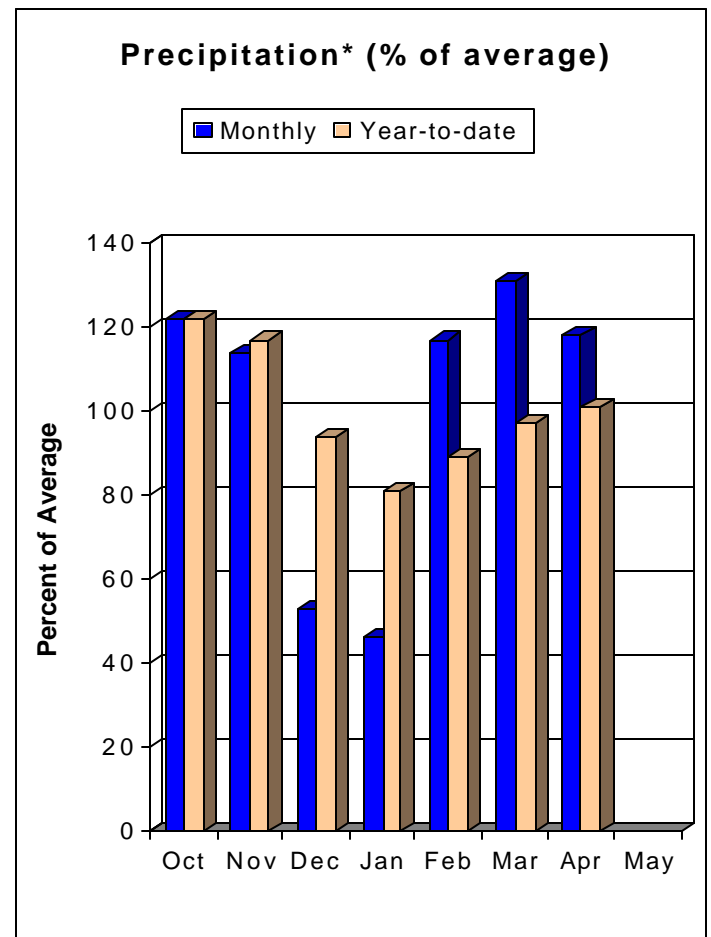
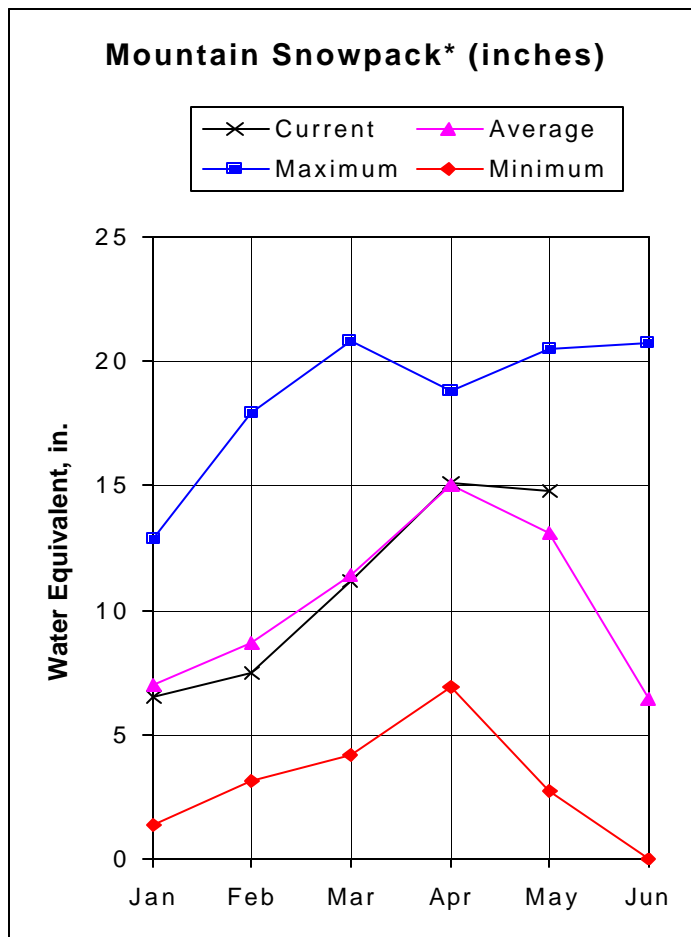
GUNNISON RIVER BASIN Reservoir Storage (1000 AF) - End of April					GUNNISON RIVER BASIN Watershed Snowpack Analysis - May 1, 2003			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BLUE MESA	830.0	297.4	503.4	404.7	UPPER GUNNISON BASIN	11	338	71
CRAWFORD	14.3	6.8	7.0	12.1	SURFACE CREEK BASIN	2	367	77
FRUITGROWERS	4.3	4.1	2.8	4.1	UNCOMPAGRE BASIN	4	547	50
FRUITLAND	9.2	3.4	4.1	4.9	TOTAL GUNNISON RIVER BASIN	15	365	66
MORROW POINT	121.0	113.1	110.4	113.4				
PAONIA	18.0	9.8	12.4	7.4				
RIDGWAY	83.2	71.4	70.8	57.9				
TAYLOR PARK	106.0	42.2	66.6	59.9				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

# UPPER COLORADO RIVER BASIN as of May 1, 2003



\*Based on selected stations

Although some melting did get under way during April, a cool moist weather pattern late in the month was able to give the basin enough total accumulation to rise above the average peak amount. While melting has resumed, the measurements basin-wide remain above average at 105%. This amount is nearly four times the amount of snow there was last year at this time. Measurements in the basin range from only 72% of average in the Roaring Fork Watershed, to 167% of average in the Willow Creek Watershed. Precipitation during April was 118% of average, which was the third month in a row with above average precipitation. The water year total is now 101% of average. Reservoir storage in the basin is slightly better than last month, but remains extremely low for this time of year at only 42% of average. Many of the stream forecasts have improved from last month, and many are above average. They range from 78% of average on the Roaring Fork at Glenwood Springs, to 118% of average at the inflow to Willow Creek Reservoir.

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UPPER COLORADO RIVER BASIN  
Streamflow Forecasts - May 1, 2003

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		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	===== Chance Of Exceeding * =====						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Lake Granby Inflow	APR-JUL	214	235	250	111	267	292	225
Willow Creek Reservoir Inflow	APR-JUL	44	53	60	118	67	79	51
Williams Fork Reservoir inflow	APR-JUL	82	92	100	105	108	120	95
Dillon Reservoir Inflow	APR-JUL	157	173	185	111	195	215	167
Green Mountain Reservoir inflow	APR-JUL	271	297	315	113	334	363	280
Muddy Creek blw Wolford Mtn. Resv.	APR-JUL	45	51	55	92	60	67	60
Eagle River blw Gypsum	APR-JUL	265	299	325	97	353	399	335
Colorado River nr Dotsero	APR-JUL	1230	1420	1550	108	1680	1870	1440
Ruedi Reservoir Inflow	APR-JUL	84	101	115	82	130	157	141
Roaring Fork at Glenwood Springs	APR-JUL	424	497	550	78	605	692	710
Colorado River nr Cameo	APR-JUL	1810	2130	2350	97	2570	2890	2420

UPPER COLORADO RIVER BASIN Reservoir Storage (1000 AF) - End of April					UPPER COLORADO RIVER BASIN Watershed Snowpack Analysis - May 1, 2003			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DILLON	250.8	125.3	188.8	212.8	BLUE RIVER BASIN	8	395	118
LAKE GRANBY	465.6	32.2	159.5	259.5	UPPER COLORADO RIVER BASI	33	423	115
GREEN MOUNTAIN	139.0	35.8	60.8	54.3	MUDDY CREEK BASIN	3	2076	90
HOMESTAKE	43.0	17.2	13.0	16.8	PLATEAU CREEK BASIN	2	367	77
RUEDI	102.0	49.4	66.7	59.7	ROARING FORK BASIN	7	296	72
VEGA	32.0	8.8	16.0	16.6	WILLIAMS FORK BASIN	4	448	121
WILLIAMS FORK	96.8	12.5	50.2	55.3	WILLOW CREEK BASIN	3	487	167
WILLOW CREEK	9.0	6.5	6.7	5.9	TOTAL COLORADO RIVER BASI	42	396	104

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

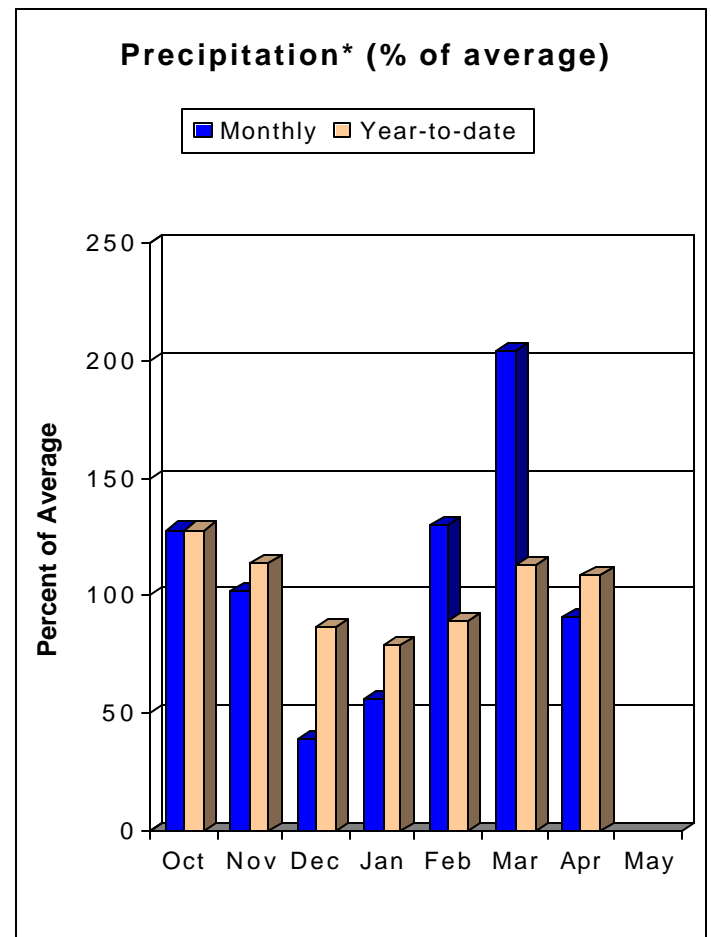
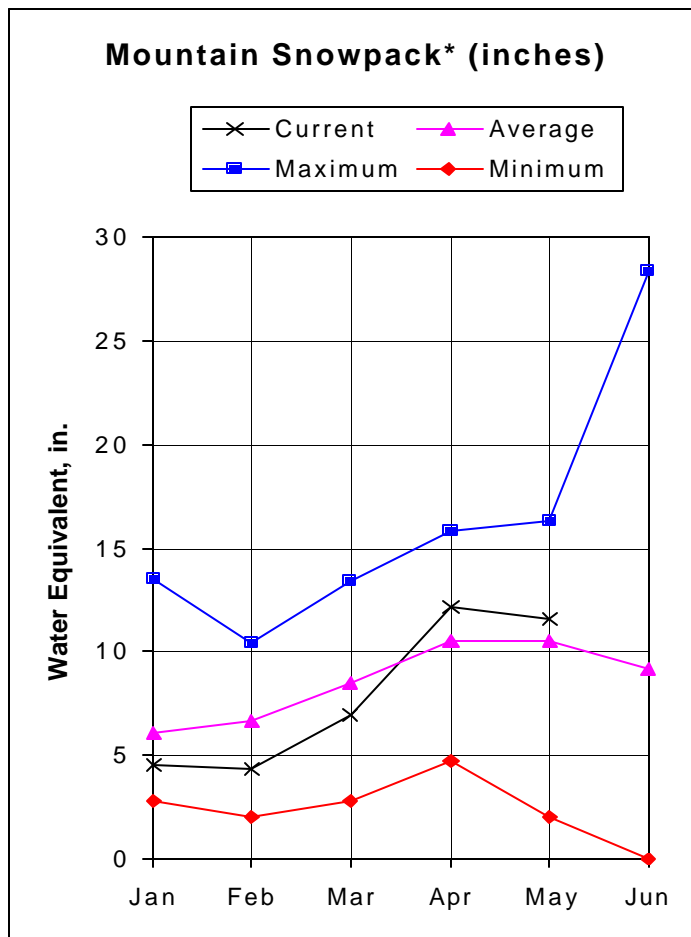
The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.



# SOUTH PLATTE RIVER BASIN

## as of May 1, 2003



\*Based on selected stations

The South Platte Basin continued to receive good amounts of snowfall through April, which drove the accumulation well above the average peak amount. The snowpack at most of the measuring sites has only begun to melt, and the May 1 measurements are at 109% of average. With a normal melt rate the snowpack could last well into mid-July, which is about a week beyond the normal melt-out date. Snow measurements range from 99% of average in the Upper South Platte Watershed, to 121% of average in the Boulder Creek Basin. Precipitation during April was 91% of average, and the water year total is now 109% of average. Reservoirs in the basin are slightly better off than last month at 64% of average, which is only 78% of the amount of storage last year at this time. The streamflow forecasts have improved slightly from last month's forecasts. Forecasts range from only 46% of average at the inflow to Antero Reservoir, to 104% of average on Boulder Creek near Orodell.

SOUTH PLATTE RIVER BASIN  
Streamflow Forecasts - May 1, 2003

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Antero Reservoir Inflow	APR-JUL	3.1	4.6	6.0	46	7.8	11.5	13.0
Spinney Mountain Reservoir Inflow	APR-JUL	20	27	32	80	39	51	40
Elevenmile Canyon Reservoir Inflow	APR-JUL	19.1	26	31	76	36	43	41
Cheesman Lake Inflow	APR-JUL	49	59	68	76	78	95	89
South Platte River at South Platte	APR-SEP	121	162	190	83	217	257	230
Bear Creek at Morrison	APR-SEP	19.0	24	27	87	30	35	31
Clear Creek at Golden	APR-SEP	107	121	130	97	139	153	134
St. Vrain Creek at Lyons	APR-SEP	59	71	79	94	87	99	84
Boulder Creek nr Orodell	APR-SEP	46	52	55	104	58	64	53
South Boulder nr Eldorado Spgs	APR-SEP	33	40	44	96	48	55	46
Big Thompson River at mouth nr Drake	APR-SEP	98	111	120	103	129	142	117
Cache La Poudre at Canyon Mouth	APR-SEP	230	265	285	104	305	340	275

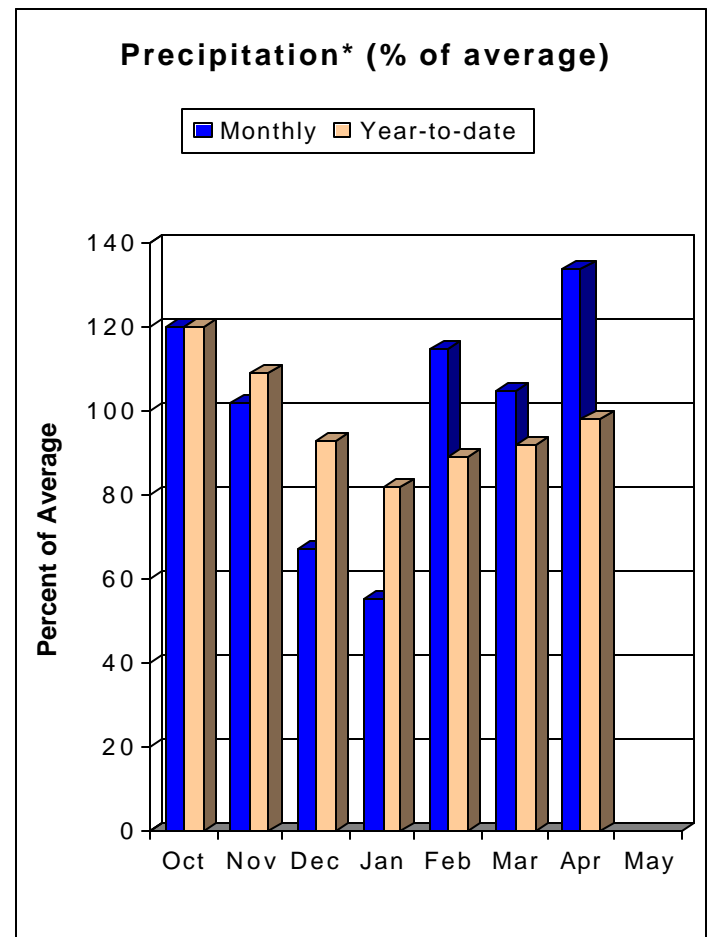
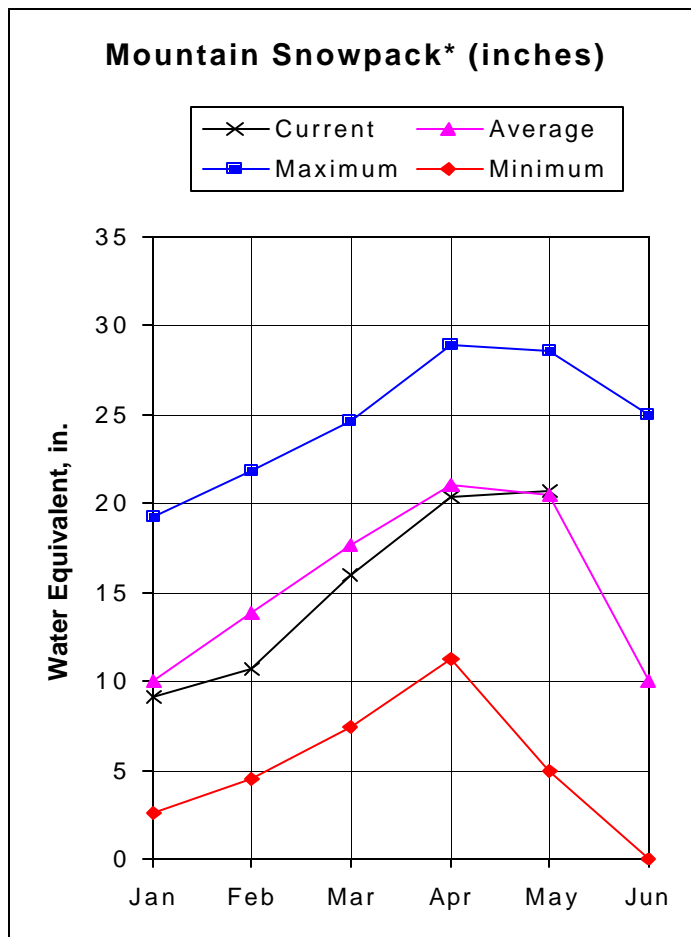
SOUTH PLATTE RIVER BASIN Reservoir Storage (1000 AF) - End of April					SOUTH PLATTE RIVER BASIN Watershed Snowpack Analysis - May 1, 2003			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ANTERO	20.0	0.0	19.6	15.7	BIG THOMPSON BASIN	6	342	106
BARR LAKE	32.0	30.6	26.7	28.6	BOULDER CREEK BASIN	5	942	121
BLACK HOLLOW	8.0	2.0	2.7	4.2	CACHE LA POUDRE BASIN	8	279	112
BOYD LAKE	49.0	6.1	20.3	35.2	CLEAR CREEK BASIN	4	456	115
CACHE LA POUDRE	10.0	4.6	4.4	8.9	SAINT VRAIN BASIN	4	388	101
CARTER	108.9	96.7	102.8	103.0	UPPER SOUTH PLATTE BASIN	15	797	99
CHAMBERS LAKE	9.0	1.6	4.1	3.6	TOTAL SOUTH PLATTE BASIN	41	451	109
CHEESMAN	79.0	53.7	58.1	64.8				
COBB LAKE	34.0	2.5	6.8	14.2				
ELEVEN MILE	97.8	45.9	99.7	96.4				
EMPIRE	38.0	21.6	29.7	33.0				
FOSSIL CREEK	12.0	9.9	10.0	8.1				
GROSS	41.8	15.1	15.2	20.9				
HALLIGAN	6.4	6.4	5.3	4.8				
HORSECREEK	16.0	8.1	14.8	14.5				
HORSETOOTH	149.7	30.6	38.0	123.0				
JACKSON	35.0	24.1	25.2	30.4				
JULESBURG	28.0	19.7	16.8	21.3				
LAKE LOVELAND	14.0	11.7	9.7	10.1				
LONE TREE	9.0	8.4	8.5	7.9				
MARIANO	6.0	4.7	3.3	5.0				
MARSHALL	10.0	9.5	5.3	7.4				
MARSTON	13.0	12.4	7.8	14.5				
MILTON	24.0	12.3	21.2	19.2				
POINT OF ROCKS	70.0	49.7	66.3	69.8				
PREWITT	33.0	12.2	22.1	25.9				
RIVERSIDE	63.1	46.9	48.6	57.9				
SPINNEY MOUNTAIN	48.7	11.9	25.1	32.1				
STANDLEY	42.0	26.1	28.0	35.3				
TERRY LAKE	8.0	6.0	5.1	5.7				
UNION	13.0	7.2	9.5	11.7				
WINDSOR	19.0	4.6	7.6	13.6				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# YAMPA, WHITE, NORTH PLATTE, AND LARAMIE RIVER BASINS as of May 1, 2003



\*Based on selected stations

These basins have the fortunate distinction of being the only locations where there is actually more snow basin-wide on May 1 than there was on April 1. Likewise, the snowpack percent of average in most of these basins has gone up. The White River Basin remains at 85% of average, which is the same as last month, while the North Platte has been boosted to 107% of average, which is 7% higher than last month. Precipitation measurements during April were a whopping 134% of average, which is the highest monthly accumulation this water year. The water year total is now 98% of average. There has been 145% of the precipitation there was last water year by this time. Reservoirs in the basin have slightly higher storage amounts than last month, at 98% of average for this time of year. There is 100% of last year's storage amount. Streamflow forecasts remain nearly the same as last month at below to well below average for most of the sites. They range from 60% of average on the White River near Meeker, to 91% of average on the Yampa River at Steamboat Springs.

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Streamflow Forecasts - May 1, 2003

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
NORTH PLATTE RIVER nr Northgate	MAY-SEP	139	175	200	87	225	260	230
LARAMIE RIVER nr Woods	MAY-SEP	65	92	110	87	128	155	127
Yampa R abv Stagecoach Res	APR-JUL	14.5	21	26	90	31	38	29
Yampa River at Steamboat Springs	APR-JUL	220	240	255	91	270	290	280
Elk River nr Milner	APR-JUL	182	221	250	77	281	329	325
Elkhead Creek nr Elkhead	APR-JUL	21	26	30	77	35	43	39
ELKHEAD CREEK blw Maynard Gulch	APR-JUL	33	43	50	85	57	67	59
Fortification Ck nr Fortification	MAR-JUN	3.20	5.10	6.40	85	7.70	9.60	7.50
Yampa River nr Maybell	APR-JUL	625	740	820	83	900	1010	990
Little Snake River nr Slater	APR-JUL	87	109	126	79	144	173	159
LITTLE SNAKE R nr Dixon	APR-JUL	154	215	260	79	305	365	330
LITTLE SNAKE R nr Lily	APR-JUL	175	240	285	78	330	395	365
White River nr Meeker	APR-JUL	131	156	175	60	197	233	290

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Reservoir Storage (1000 AF) - End of April

YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS  
Watershed Snowpack Analysis - May 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
STAGECOACH	33.3	30.0	28.2	28.1	LARAMIE RIVER BASIN	4	271	102
YAMCOLO	9.1	4.9	6.7	7.4	NORTH PLATTE RIVER BASIN	9	242	100
					TOTAL NORTH PLATTE BASIN	12	241	100
					ELK RIVER BASIN	2	234	79
					YAMPA RIVER BASIN	11	296	96
					WHITE RIVER BASIN	4	234	85
					TOTAL YAMPA AND WHITE RIV	14	284	91
					LITTLE SNAKE RIVER BASIN	8	185	93

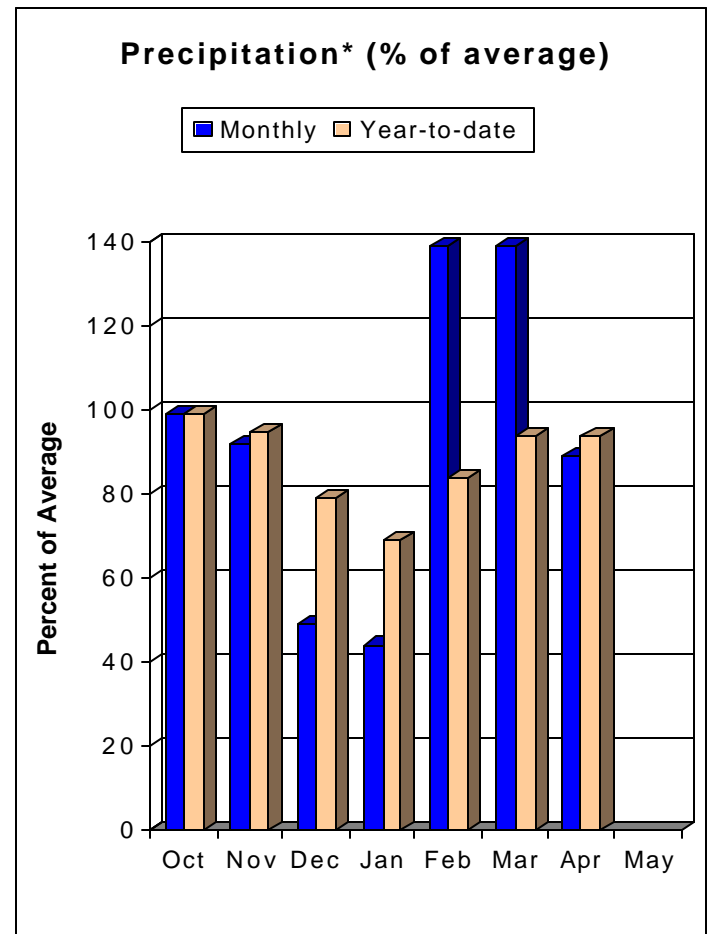
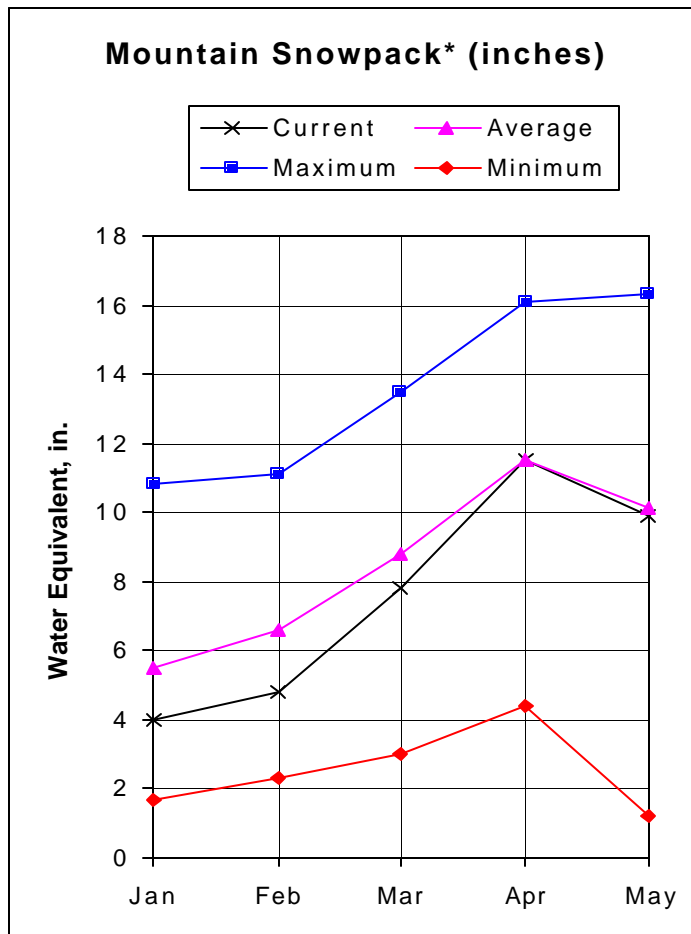
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# ARKANSAS RIVER BASIN

## as of May 1, 2003



\*Based on selected stations

The Arkansas Basin received some welcome snowfall in late April, which at times drove the accumulation to above average levels. Now that the snow melt season appears to be well under way, the snowpack measurements are back down to slightly below average, which is about the same percent of average as last month. Most watersheds in the basin have near average measurements with the exception of the Purgatoire Watershed, where the measurements are only 56% of average. Precipitation measurements for the month of April were only 89% of average, and the water year total remains at 94% of average. There has been about 163% of the precipitation there was last water year by this time. Reservoirs in the basin have only 44% of their average combined storage amount for the end of April. There is only 58% of the storage there was last year at the end of April. Many of the May 1 streamflow forecasts have gone down from last month. They range from 80% of average at the Cucharas River near La Veta, to 89% of average on the Huerfano River near Redwing.

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ARKANSAS RIVER BASIN

Streamflow Forecasts - May 1, 2003

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		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	===== Chance Of Exceeding * =====						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
Chalk Creek nr Nathrop	APR-SEP	10.9	17.5	22	82	26	33	27
Arkansas River at Salida	APR-SEP	194	240	275	89	310	355	310
Grape Creek nr Westcliffe	APR-SEP	4.1	11.9	17.3	88	23	31	19.6
Pueblo Reservoir Inflow	APR-SEP	250	320	365	85	410	480	430
Huerfano River nr Redwing	APR-SEP	9.2	12.0	13.8	89	15.6	18.4	15.5
Cucharas River nr La Veta	APR-SEP	5.3	8.3	10.4	80	12.5	15.5	13.0
Trinidad Lake Inflow	APR-SEP	19.0	30	38	86	46	57	44

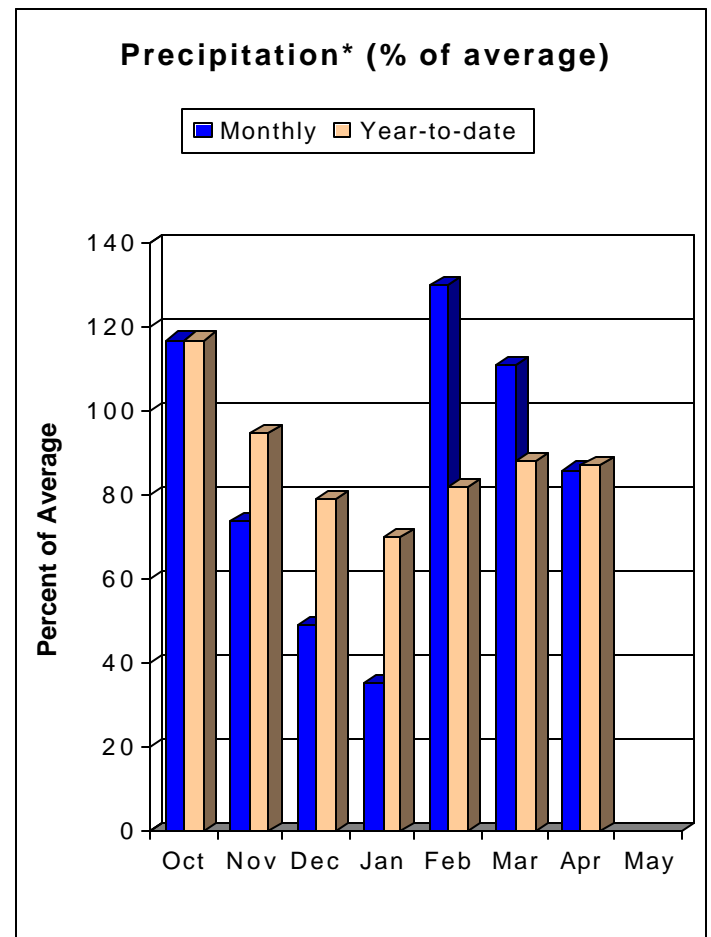
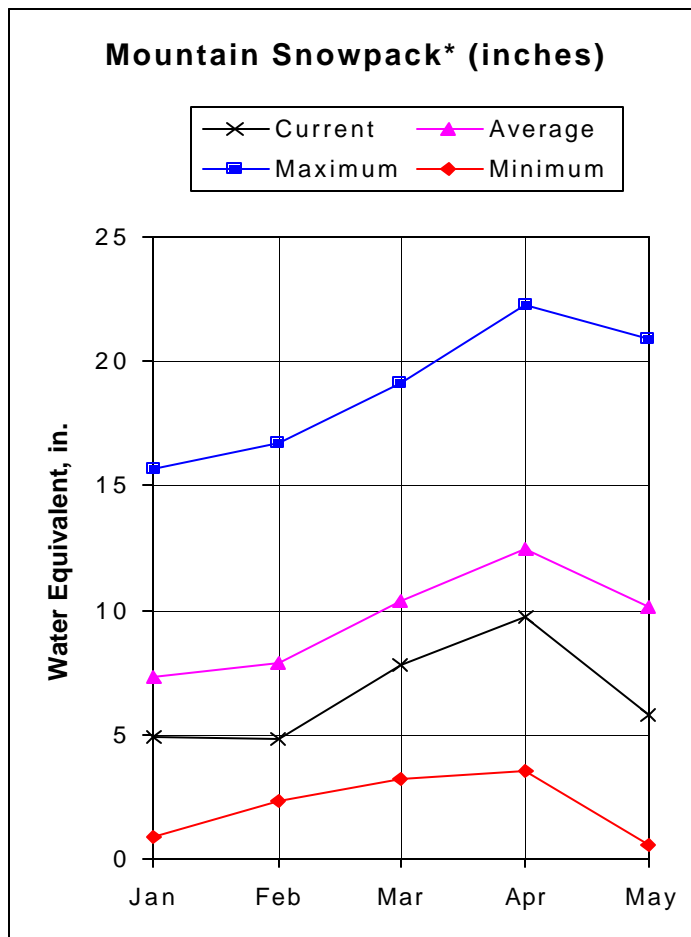
ARKANSAS RIVER BASIN Reservoir Storage (1000 AF) - End of April					ARKANSAS RIVER BASIN Watershed Snowpack Analysis - May 1, 2003			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of =====	
		This Year	Last Year	Avg			Last Yr	Average
ADOBE	70.0	0.0	27.1	34.3	UPPER ARKANSAS BASIN	3	295	99
CLEAR CREEK	11.0	7.0	6.4	6.0	CUCHARAS & HUERFANO RIVER	4	671	100
GREAT PLAINS	150.0	0.8	21.8	40.6	PURGATOIRE RIVER BASIN	2	0	56
HOLBROOK	7.0	1.7	5.8	4.7	TOTAL ARKANSAS RIVER BASIN	8	419	99
HORSE CREEK	28.0	0.0	0.0	11.3				
JOHN MARTIN	335.7	41.8	78.7	123.7				
LAKE HENRY	8.0	6.1	5.9	6.0				
MEREDITH	42.0	10.7	18.5	20.1				
PUEBLO	236.7	103.7	135.9	163.5				
TRINIDAD	72.3	19.6	18.1	29.1				
TURQUOISE	126.6	29.9	57.0	70.8				
TWIN LAKES	86.0	21.2	44.4	41.3				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

# UPPER RIO GRANDE RIVER BASIN as of May 1, 2003



\*Based on selected stations

Looks like the Rio Grande Basin will have to struggle through another extremely low water supply season. The snow began melting early last month and if the rate of melt continues, most of the snow in the basin will be gone before June, which is nearly two months ahead of the average melt-out date. The May 1 snowpack measurements are only 56% of average basin-wide. Most of the watersheds in the basin are much below average, while the Culebra and Trinchera watershed is a whopping 105% of average. Precipitation was only 87% of average during April, and the water year total is now 87% of average. Reservoirs in the basin contain only 59% of their average storage amount for this time of year, which is only 83% of the storage amount there was last year at this time. Most of the streamflow forecasts have been reduced from their already meager April 1 numbers. Many forecasts are now below 50% of average. Culebra and Costilla Creeks remain the exception with forecasts at or near average. The remaining forecasts range from only 43% of average at Rio Grande at Del Norte, to 78% of average at the Trinchera Water Supply.

=====

UPPER RIO GRANDE BASIN  
Streamflow Forecasts - May 1, 2003

=====

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Rio Grande at Thirty Mile Bridge	APR-SEP	58	61	64	47	67	71	136
Rio Grande Reservoir Inflow	APR-JUL	49	53	55	47	58	61	118
Rio Grande at Wagon Wheel Gap	APR-SEP	117	140	155	45	170	195	345
South Fork Rio Grande at South Fork	APR-SEP	49	59	65	49	71	81	132
Rio Grande nr Del Norte	APR-SEP	175	210	230	43	250	285	531
Saguache Creek nr Saguache	APR-SEP	9.6	16.0	21	64	26	32	33
Alamosa Creek abv Terrace Reservoir	APR-SEP	19.0	27	32	46	37	45	70
La Jara Creek nr Capulin	MAR-JUL	1.84	2.40	4.00	46	5.60	7.90	8.70
Trinchera Water Supply	APR-SEP	18.0	26	31	78	36	44	40
Platoro Reservoir Inflow	APR-JUL	28	33	37	58	41	46	64
	APR-SEP	32	38	42	59	46	52	71
Conejos River nr Mogote	APR-SEP	87	107	120	60	133	153	200
San Antonio River at Ortiz	APR-SEP	5.6	7.5	9.0	55	10.6	13.2	16.4
Los Pinos River nr Ortiz	APR-SEP	27	33	38	51	43	49	74
Culebra Creek at San Luis	APR-SEP	13.6	19.0	23	100	27	32	23
Costilla Reservoir inflow	MAR-JUL	7.6	9.0	10.0	94	11.0	12.4	10.6
Costilla Creek nr Costilla	MAR-JUL	18.0	22	24	92	26	30	26

UPPER RIO GRANDE BASIN Reservoir Storage (1000 AF) - End of April					UPPER RIO GRANDE BASIN Watershed Snowpack Analysis - May 1, 2003			
=====								
Reservoir	Usable	*** Usable Storage ***			Watershed	Number	This Year as % of	
	Capacity	This	Last	Avg		of	=====	
		Year	Year			Data Sites	Last Yr	Average
=====								
CONTINENTAL	15.0	5.1	4.2	6.6	ALAMOSA CREEK BASIN	2	0	15
PLATORO	53.7	7.7	13.8	23.3	CONEJOS & RIO SAN ANTONIO	4	3047	62
RIO GRANDE	51.0	19.0	13.7	21.4	CULEBRA & TRINCHERA CREEK	5	0	105
SANCHEZ	103.0	12.8	24.3	25.8	UPPER RIO GRANDE BASIN	12	453	43
SANTA MARIA	45.0	9.3	7.9	11.1	TOTAL UPPER RIO GRANDE BA	23	911	56
TERRACE	13.1	3.2	4.7	7.8				

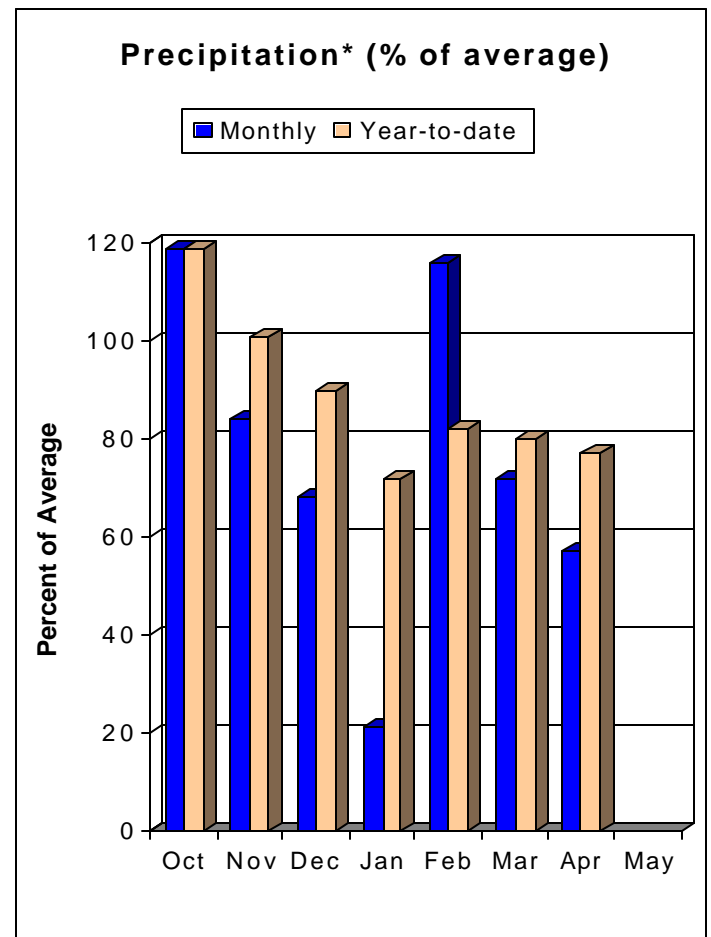
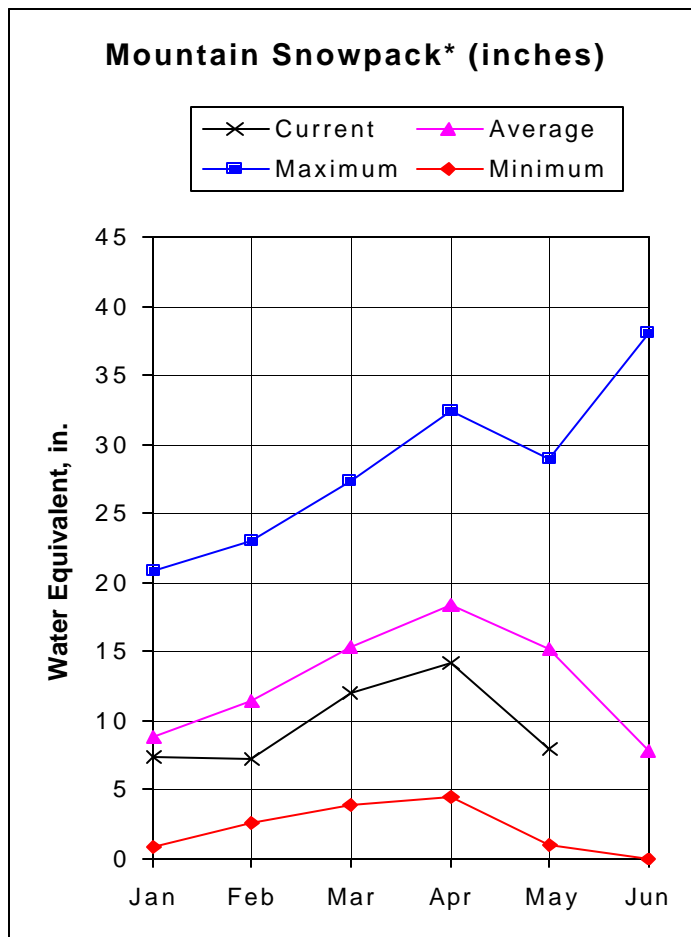
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- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.



# SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS as of May 1, 2003



\*Based on selected stations

It appears that these basins will be struggling through another extremely low water supply season this year. The snowpack began to melt in these basins in early April, and if the melt rates continue most of the snow will be melted by early June, which would be well over a month ahead of the average melt-out date. The snowpack measurements on May 1 are only 51% of average. Measurements range from 41% of average in the Dolores Basin, to 62% of average in the San Juan Basin. Precipitation during April was only 57% of average, and the water year total is only 77% of average. There has been 161% of the amount of precipitation last water year by this time. Reservoirs in these basins have only 65% of their average storage amount for this time of year, which is only 87% of last year's storage. Unfortunately, while the snow has been melting, the streamflows have not risen as much as would have been expected, and the new forecasts reflect these observations with reduced numbers. They range from only 42% of average at the inflow to Navajo Reservoir, to 60% of average on the Dolores River at Dolores.

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SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

Streamflow Forecasts - May 1, 2003

=====

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
=====								
Dolores River at Dolores	APR-JUL	107	138	160	60	180	215	265
McPhee Reservoir inflow	APR-JUL	118	155	180	56	205	240	320
San Miguel River nr Placerville	APR-JUL	45	64	77	58	90	109	132
Gurley Reservoir Inlet	MAY-JUL	4.8	7.2	8.9	60	10.6	13.0	14.8
	MAY			6.00	68			8.83
	JUNE			2.50	54			4.67
	JULY			0.40	30			1.32
Cone Reservoir Inlet	MAY-JUL	1.26	1.60	1.83	60	2.06	2.40	3.06
	MAY			1.15	70			1.64
	JUNE			0.56	54			1.04
	JULY			0.12	32			0.38
Lilylands Reservoir Inlet	MAY-JUL	0.56	1.11	1.48	60	1.85	2.44	2.45
	MAY			0.92	70			1.32
	JUNE			0.47	54			0.87
	JULY			0.09	33			0.27
Rio Blanco at Blanco Diversion	APR-JUL	17.0	25	30	57	35	43	53
Navajo River at Oso Diversion	APR-JUL	21	31	38	55	45	55	69
San Juan River nr Carracus	APR-JUL	122	166	200	49	237	297	405
Piedra River nr Arboles	APR-JUL	72	89	100	44	111	128	230
Vallecito Reservoir Inflow	APR-JUL	89	98	105	51	112	121	205
Navajo Reservoir Inflow	APR-JUL	170	270	335	42	400	500	800
Animas River at Durango	APR-JUL	146	200	240	55	280	335	440
Lemon Reservoir Inflow	APR-JUL	17.0	24	28	48	32	39	58
La Plata River at Hesperus	APR-JUL	7.7	9.8	11.3	45	12.8	14.9	25
Mancos River nr Mancos	APR-JUL	7.2	12.0	18.0	45	24	32	40
	MAY			9.0	57			15.9
	JUNE			4.5	33			13.7
	JULY			1.20	26			4.60
=====								

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Reservoir Storage (1000 AF) - End of April

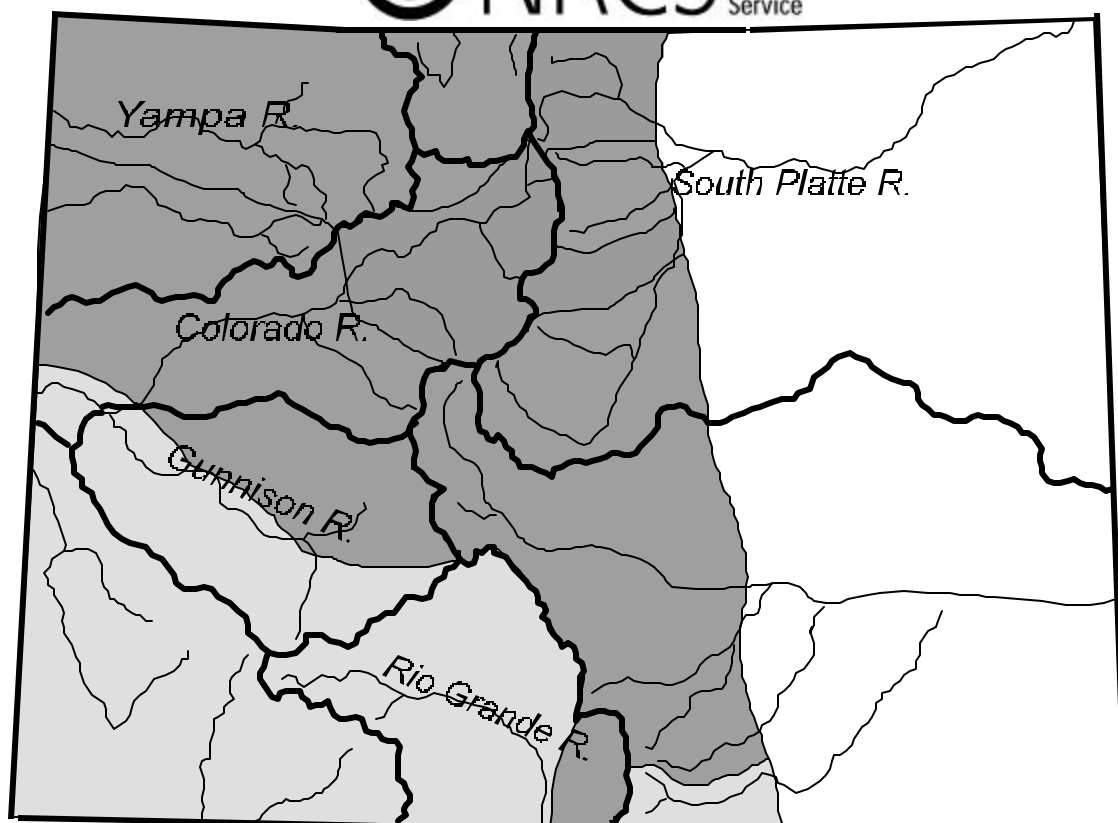
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS  
Watershed Snowpack Analysis - May 1, 2003

Reservoir	Usable	*** Usable Storage ***			Watershed	Number	This Year as % of	
	Capacity	This	Last			of	=====	
		Year	Year	Avg		Data Sites	Last Yr	Average
=====								
GROUNDHOG	21.7	5.9	11.2	14.2	ANIMAS RIVER BASIN	9	954	53
JACKSON GULCH	10.0	5.1	3.3	7.4	DOLORES RIVER BASIN	6	1200	41
LEMON	40.0	9.0	16.0	23.4	SAN MIGUEL RIVER BASIN	5	0	43
MCPHEE	381.2	193.7	214.9	304.6	SAN JUAN RIVER BASIN	3	492	62
NARRAGUINNEP	19.0	17.1	17.1	17.1	TOTAL SAN MIGUEL, DOLORES	22	809	51
VALLECITO	126.0	54.4	64.0	70.3	AN JUAN RIVER BASINS			
=====								

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

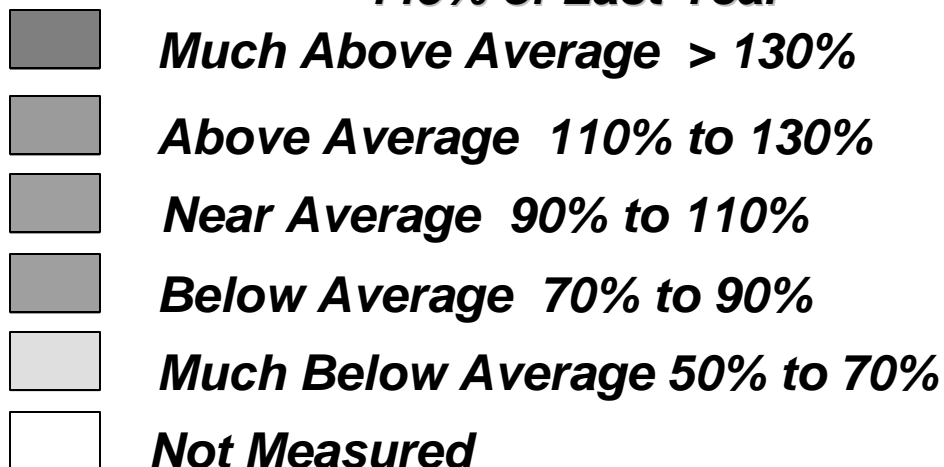
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## ***Snowpack May 1, 2003***

***Statewide: 87% of Average  
445% of Last Year***





655 Parfet Street, Room E200C  
Lakewood, CO 80215-5517

In addition to the basin outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, January through May. The information may be obtained from the National Resources Conservation Service web page at <http://www.wcc.nrcs.usda.gov/water/quantity/westwide.html>.

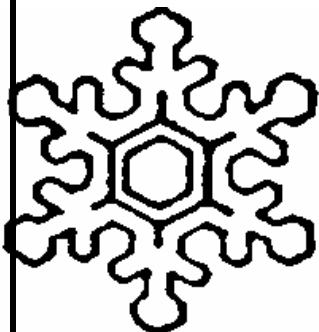
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*Issued by*

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**Colorado**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
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